

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE PENNSYLVANIA RAILROAD AT LOGANSPORT, IND , ON FEBRUARY 26, 1923

April 30, 1923

To the Commission:

On February 26, 1923, there was a head-end collision between a freight transfer and a light engine on the Pennsylvania Railroad at Logansport, Ind , resulting in the death of one employee, and the injury of one employee

Location and method of operation

The engine roundhouse at Logansport is located about 1 mile east of the station. The accident occurred on the eastbound main track, at a point approximately 1 mile west of the station, and about 600 feet west of the tower at Peoria Junction. In this immediate vicinity this is a double-track line over which trains are operated by time-table, train orders, and a manual block-signal system. Approaching the point of accident from the east, beginning at the station, there are several short curves and tangents, and a curve of 2° to the left 720 feet in length, followed by a tangent extending beyond the point of accident 300 feet. The grade is slightly ascending for westbound trains. Owing to the 2-degree curve, on the inside of which the tower at Peoria Junction is situated, the engine crew of the freight transfer could not see the approaching light engine until they were within 700 feet of it. The weather was cloudy at the time of the accident, which occurred at about 11.57 a m

Description.

Light engine 7660, in charge of Hostler Wyatt, was backed out of the roundhouse, spotted on the turntable, headed west, and then proceeded, it being intended to stop it at the water plug located a short distance west of the turntable. However, on arrival at this point the throttle could not be closed, on account of the throttle lever mechanism breaking, and on reaching a point just west of the tower at Peoria Junction, on eastbound track 2, while traveling at a speed estimated to have been about 30 miles an hour, the engine collided with the freight transfer

The eastbound freight transfer involved consisted of 58 cars, hauled by E J & E engine 599 and P R R engine 7440, both headed west, and was in charge of Conductor Bell and Engineer Watson and Beal, respectively. This transfer left the west yard at about 11 50 a m., and on reaching a

point just east of the signal bridge, while traveling at a speed estimated to have been about 7 miles an hour, collided with the light engine

Engines 7440 and 7660 were partly derailed and badly damaged, while engine 599 was only slightly damaged. Five of the freight cars were damaged, one being practically destroyed. The employee killed was the engineman of engine 7440.

Summary of evidence

Hostler Wyatt backed light engine 7660 out of the roundhouse and brought it to a stop on the turntable, at which time the steam pressure was 180 pounds. At this time he noticed that the throttle lever worked stiffly. After being turned, this engine was moved toward the water tank, located a short distance west of the turntable, where it was intended to stop, but in moving off the turntable at a low rate of speed, Hostler Wyatt endeavored to close the throttle, found he could not do so, and noticed that the speed was increasing. He then applied the air brakes and made an unsuccessful effort to place the reverse lever on center, this checked the engine but did not stop it, and he sounded several long blasts on the engine whistle to attract attention, struck the throttle twice with the shaker bar, in an endeavor to close it, and also made another attempt to place the reverse lever on center. When about opposite the yard office, the speed reduced a little, and Hostler Wyatt got off to see if he could block the wheels. He ran to the telegraph office, in the same building with the yard office, and notified the operator that the engine was beyond his control, and to take action accordingly, then overtook the engine, boarded it, and again endeavored to move the reverse lever to center. While proceeding up the lead track, he got off a second time to see if he could find any blocking, and again got on the engine, together with Switchtender Champion, who also tried to shut off steam and reverse the engine, but was unsuccessful; the engine was then abandoned, at which time speed was increasing, and the engine continued past the station and collided with the freight transfer. Hostler Wyatt stated he would have opened the blow-off cock, but was afraid of scalding some one. Hostler Wyatt further stated that he had not noticed what was wrong with the throttle.

The first intimation any of the members of the freight transfer crew had of anything wrong was on seeing the light engine rounding the curve, Engineman Watson immediately applying the air brakes in emergency, reducing the speed of the transfer to some extent before the accident occurred.

Operator McDermott, on duty at the yard office, notified the dispatcher, on duty at the station at Logansport, concerning the runaway engine, and efforts were made to have switches lined so that the engine could be diverted to west-bound track 1 and be derailed at MR Tower, just west of the point of accident, but this could not be accomplished.

Engineman Baker made a trial run of 60 miles with engine 7660 on the day before the accident, on which day it had come out of the shop after receiving class 3 repairs. He said the reverse lever worked a little hard, but that the brakes were unusually good, and that on two occasions he was able to stop the engine while using steam.

Superintendent Hudson stated that engine 7660 was taken out of service on February 20, 1922, arrived at the shop at Logansport on January 13, 1923, and went into the shop on February 8, 1923, being taken out for the trial trip on the day before the accident. Assistant Erecting Shop Foreman Rich said it was after this trial trip that the engineman in charge asked that the throttle lever fulcrum be lengthened, and the statements of the employees who attended to this work were to the effect that they did not notice anything wrong with it. After the accident, however, it was found that the throttle lever fulcrum arm had been pulled away from its base. These two parts had been joined by welding, but the work had been done so poorly that only the outside edges of the metal were welded, the metal on the inside apparently never having been welded together. This breaking of the throttle lever fulcrum prevented Hostler Wyatt from shutting off steam. It further appeared from the statements of Mr. Rich that this fulcrum was the one which was on the engine when it was received in the shops; this should have been one piece of forged steel, but the foreman of the blacksmith shop said he thought the weld was a part of the original construction.

Conclusions

This accident was caused by the breaking of the throttle lever fulcrum arm on engine 7660, making it impossible to shut off steam, and resulting in the engine getting beyond control.

The time and place of the fabrication of this fulcrum arm was not ascertained. Engine 7660 was built by the American Locomotive Company, Pittsburgh Works, under date of December 13, 1902, according to designs and drawings furnished by the Pennsylvania Railroad; other engines were built under contemporaneous orders, among which was engine 7664. The fulcrum arm is stamped with each of these numbers, 7664 being stamped on the end of the hub, and 7660 in two places on the stem, in different sized figures than the other number.

This fulcrum arm presents a shank having an offset near the forked end, and has a length of hub of 3-5/8 inches. The drawings of the railroad called for a straight shank, and hub 4 inches long, less 1/32 inch. There are two welds in the fulcrum arm, one at the hub, which fractured, and one in the smaller part of the tapered shank, near the forked end. At the hub end the weld was a jump weld, and at the smaller end a scarf weld. At the time of the construction of this engine, jump welds were common, legs on engine frames were welded in this manner. The reliability of such welds depended upon the skill of the individual blacksmith who made them. Welds in the place where this fracture occurred would not be counteracted in present construction, either a drop forging or a well-annealed steel casting would be required.

The party responsible for the fabrication of this fulcrum arm is unknown. Its manner of construction does not conform to the practice of the American Locomotive Company, according to the testimony of an employee who was with the locomotive company at the time this engine was built. Having two numbers stamped upon it, in different-sized figures, and in shape and dimensions differing from the early drawings of the railroad company, would indicate it was fabricated on some later occasion, and probably had been used on each of the engines the road numbers of which appear upon it. Having a hub nearly 3/8 inch shorter than the length called for on the drawings of the railroad company, it would not fit the standard brackets on the front of the boiler. The number 7664 was stamped on the end of the hub and would not be visible when the post was assembled, whereas the numbers 7660 were in places where they would be visible. These circumstances lead to the inference that the fulcrum arm was made and assembled subsequent to the time of fabrication of the engine and in some shop where these two engines, 7660 and 7664, were overhauled.

There was a twist in the forked end of the fulcrum arm, the slotted end taking such an angle with the pivot pin that the end of the throttle lever would be thrown not less than 6 inches out of normal height. The jump weld was defective, only a small part of the shank at its edge being welded to the hub. Notwithstanding its defective state, the fulcrum arm appears to have performed its functions for a term of months, or perhaps years, up to the time of the accident.

In looking for a proximate cause of its fracture, attention centers upon the smith work done upon it just prior to its failure. The shank of the arm was lengthened, and two heats taken upon it. Apparently, by means of a dolly, it was swaged in length. Heating the shank would set up strains at its junction with the hub. In swaging, vibratory strains would be set up. Each of these conditions would tend to cause rupture at the jump weld. It is believed, therefore,

that the beating of the snank and dollying of the same started rupture and further weakened the arm to such a degree that fracture occurred soon after, that is, when the engine was being put into service, this being the reason for its failure. Thorough investigation should be made to see that similar conditions do not exist in the case of other engines of this class.

The employees involved were experienced men, at the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. Borland,

Director.